

IN THE CLAIMS:

Please cancel Claims 10, 11, and 13 without prejudice to or disclaimer of the subject matter presented therein.

Please amend Claims 1-6, 8, 9, 14, 15, 17, and 21 and add new Claims 25-27 as follows.

1. (Currently Amended) An information processing apparatus that derives the calibration information needed to measure the position and/or ~~attitude~~ orientation of a measuring object based on the output values of a position and/or ~~attitude~~ orientation sensor ~~which is used by a mixed reality display device~~, comprising:

~~an a real image input unit, which is mounted on the measuring object, adapted to input a real image enter information about a match between the position and/or attitude of a real image, which changes according to movement of the mixed reality display device, of a measuring object and a predetermined position and/or attitude of a virtual image of the measuring object;~~

a virtual image generation unit adapted to generate a virtual image of indices using geometry information of the indices to be captured by said real image input unit, and a predetermined position and/or orientation of said measuring object;

a position and/or orientation sensor mounted directly or indirectly on the measuring object;

an input unit adapted to input a user's instruction indicating a match between a position and/or orientation, which changes according to movement of a mixed reality display device, of the indices on the real image input by said real image input unit and a

position and/or orientation of the indices on the virtual image generated by said virtual image generation unit;

an acquisition unit adapted to acquire the output values from the position and/or ~~attitude~~ orientation sensor according to the input by said input unit; and

an operation unit adapted to derive the calibration information, based on the predetermined position and/or ~~attitude~~ orientation and the output values of the position and/or ~~attitude~~ orientation sensor acquired by said acquisition unit.

2. (Currently Amended) The information processing apparatus according to claim 1, wherein:

said position and/or ~~attitude~~ orientation sensor ~~has been connected directly or indirectly to said measuring object and~~ outputs the output values ~~of said sensor are information that represents~~ represent the position and/or ~~attitude~~ orientation of said sensor itself in the sensor coordinate system; and

said calibration information contains first coordinate transformation information for converting the position and/or ~~attitude~~ orientation of said sensor itself in the sensor coordinate system into the position and/or ~~attitude~~ orientation of said measuring object in the sensor coordinate system and second coordinate transformation information for converting the position and/or ~~attitude~~ orientation in the sensor coordinate system into the position and/or ~~attitude~~ orientation in a global coordinate system.

3. (Currently Amended) The information processing apparatus according to

claim 1, further comprising guiding means for guiding said measuring object to said predetermined position and/or ~~attitude~~ orientation.

4. (Currently Amended) The information processing apparatus according to claim 2, wherein:

the measurement of said position and/or ~~attitude~~ orientation is measurement of position and ~~attitude~~ orientation, and said sensor is a position and ~~attitude~~ orientation sensor; and

said operation unit performs the process of determining ~~attitude~~ orientation information among said first coordinate transformation information and position information among said second coordinate transformation information.

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5. (Currently Amended) The information processing apparatus according to claim 2, wherein:

the measurement of said position and/or ~~attitude~~ orientation is measurement of only ~~attitude~~ orientation, and said sensor is an ~~attitude~~ orientation sensor; and

said operation unit performs the process of determining pitch-angle and roll-angle information among said first coordinate transformation information and yaw-angle information among said second coordinate transformation information.

6. (Currently Amended) The information processing apparatus according to claim 2, wherein:

the measurement of said position and/or ~~attitude~~ orientation is measurement of only ~~attitude~~ orientation, and said sensor is an ~~attitude~~ orientation sensor; and

said operation unit performs the process of determining yaw-angle information among said second coordinate transformation information.

7. (Cancelled)

8. (Currently Amended) The information processing apparatus according to claim 1, wherein said measuring object is the viewpoint of the user observing a display device that displays a virtual ~~space~~ object superimposed over the real space transmitted optically through a display screen.

9. (Currently Amended) The information processing apparatus according to claim 1, wherein said real image input unit captures a real space, and said measuring object is the viewpoint of said real image input unit ~~an imaging means for capturing real space~~.

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Currently Amended) The information processing apparatus according to claim [[10]] 1, wherein said ~~object indices~~ has have an area or volume in real space and said geometry information contains shape information of the ~~object~~ indices.

15. (Currently Amended) The information processing apparatus according to claim 14, wherein the virtual image of the indices is ~~said picture generation means draws~~ a wire frame image ~~of said object~~.

16. (Cancelled)

17. (Currently Amended) The information processing apparatus according to Claim 1, further comprising:

switching means for switching between a presentation mode that presents mixed reality and a derivation mode that derives calibration information.

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Currently Amended) An information processing method that derives the calibration information needed to measure the position and/or attitude orientation of a measuring object based on the output values of a position and/or attitude orientation sensor ~~which is used by a mixed reality display device~~, comprising the steps of:

entering a real image derived from a real image input unit;

generating a virtual image of a ~~measuring object~~ indices having a predetermined position and/or attitude orientation;

inputting [[a]] position and/or attitude orientation information from the sensor when a position and/or attitude orientation of the ~~measuring object~~ indices included in the real image matches a position and/or attitude orientation of a virtual image of the ~~measuring object~~ by changing a position and/or attitude of the real image input unit indices, and

generating calibration information from the inputted position and/or attitude orientation information and predetermined position and/or orientation of the indices.

22. (Cancelled)

23. (Previously Presented) A computer-readable storage medium which stores the program code for executing the information processing method according to claim 21.

24. (Cancelled)

25. (New) The information processing method according to claim 21, wherein there is a predetermined position relationship between said real image input unit and the measuring object, and the position and/or orientation of the indices included in the real image and the position and/or orientation of a virtual image of the indices are matched by changing a position and/or orientation of said real image input unit.

26. (New) The information processing method according to claim 21, wherein the virtual image of the indices is a wire frame image.

27. (New) The information processing apparatus according to claim 1, further comprising, equipment for setting the position and/or orientation of the measuring object to initial states.